

REMARKS

INTRODUCTION

In accordance with the foregoing, claims 1, 5, 8-12, and 14-17 have been amended. Claims 18 and 19 have been added. No new matter is being presented, and approval and entry are respectfully requested.

Claims 1-19 are pending and under consideration.

PRIOR ART - CAMACHO

Camacho discusses a system for editing graphs that are displayed on a screen. Graphs consist of elements, which may be either edges or nodes. There are two forms of editing; destroying or deleting elements, and inserting new elements. Both operations involve setting an operation point by checking (e.g., clicking) an element with a pointer device. The designated element becomes the point of operation. As discussed below with reference to the claims, the present invention and Camacho have different methods of designating the point of operation.

REJECTIONS UNDER 35 USC §§ 102 AND 103

In the Office Action, at pages 3-7, claims 1-5 and 7-12 were rejected under 35 U.S.C. § 102 as anticipated by Camacho. Claim 6 was rejected under 35 U.S.C. § 103 as being obvious over Camacho. These rejections are traversed and reconsideration is requested.

Claims 1, 9, and 11

Claim 1 recites "responding to a third object having been interactively placed in a predetermined position in relation to the first connector ... by automatically creating and displaying a second connector for connecting the displayed first object and the third object and a third connector for connecting the displayed third object and the second object". Claims 9 and 11 recite similar features. In other words, in one aspect of the invention, the act of interactively placing a new node (third object) in proximity to the connector being split by the insertion (in a predetermined position in relation to the first connector) is what causes the automatic graphical insertion of the new node.

In contrast, Camacho uses a process of first choosing the operation (e.g. insertion) to occur, and then checking an element (e.g. clicking on the element). The selected or checked

element becomes the point of insertion. This is supported by Camacho's mention of "successive ... operations relative to the elements *chosen* by the user" (col. 6, lines 25 and 26). An element is chosen by *checking*: "an input/output peripheral, e.g. a mouse and by *checking* on the screen makes the choice of the operation ... *and* the elements [to be operated on]" (col. 6, lines 32-35). Camacho does not discuss any other technique by which a user controls the point of insertion, and "*checking*" is not the same as interactive placement. Camacho does not discuss interactive placement (e.g. dragging/dropping) of a new node as causing an automatic insertion response.

Figure 9 of Camacho shows new node Z0 being inserted between nodes E3 and F3. The corresponding discussion, starting at col. 14, line 40, begins with the assumption that an insertion point has already been determined (by *checking*). Camacho then describes how the pre-insertion graph is restructured to accommodate the new element being inserted. None of the ensuing description of insertion mentions how the insertion point is determined.

Camacho does mention "dropping" ("the second phase consists of dropping again into the structures", col. 14, lines 61 and 62). However "dropping" refers to structural displacement, not the user interface "dropping" (drag and drop). "Dropping" in Camacho cannot refer to a technique for interactively selecting an element because selecting the point of insertion cannot be the *second* phase of displacement; displacement necessarily follows selection of a point of insertion, which Camacho does by *checking* an element with a pointer device.

Withdrawal of the rejection of claims 1, 9, and 11 is respectfully requested.

Claim 8

Claim 8 is distinguishable for similar reasons. Claim 8 also recites a case where a new object or node is inserted into a position associated with a one-to-many connection, as by selecting multiple connectors ("a plurality of first connectors"). Camacho does not discuss this feature. Withdrawal of the rejection of claim 8 is respectfully requested.

Claims 5, 10, and 12

Claims 5, 10, and 12, recite inserting a new node "when an area on the display screen is designated by a user of said graphic editing apparatus and the designated area overlaps the first connector". As discussed above, Camacho discusses at most *checking* or selecting an element (such as a connector), as a point of insertion. Camacho does not mention or discuss designating an area and inserting at a connector that overlaps the designated area. Withdrawal of the rejection of claims 5, 10, and 12 is respectfully requested.

Claims 13-17

Unamended claim 13 recites "interactively determining a displayed first connection in the displayed graph by comparing a position of the first connection with a position of an object being moved by the input device". Claim 14 recites inserting (adding a new connector) "in response to the interactive locating". Claim 15 recites inserting a "node between existing edge-connected nodes of a displayed graph by one of (1) dragging the node over or near a line connecting the existing nodes and (2) dropping the node onto or near the line". Claims 16 and 17 recite features similar to claim 15. In view of the arguments above, withdrawal of the rejection of claims 13-17 is respectfully requested.

NON-FINAL OFFICE ACTION REQUESTED

As stated in MPEP § 707.07(a), an Office Action should not be made final if an Examiner "introduces a new ground of rejection that is [not] necessitated by applicant's amendment of the claims". Claims 1, 9, and 11 contain only a minor amendment clarifying a previously recited feature ("when" has been changed to "responding to"). No new basis for rejecting claims 1, 9, and 11 can be necessitated by this minor claim amendment. Claim 13 has not been amended. Therefore, any future Office Action including a new basis of rejection of claim 1, 9, 11, or 13 is respectfully requested to be made non-Final.

DEPENDENT CLAIMS

The dependent claims are deemed patentable due at least to their dependence from allowable independent claims. These claims are also patentable due to their recitation of independently distinguishing features. For example, claim 2 recites "when the first connector and the third object overlap each other, said interactive graphical editing unit automatically creates and displays the second and third connectors". This feature is not taught or suggested by the prior art. Withdrawal of the rejection of the dependent claims is respectfully requested.

NEW CLAIMS

New claim 18 has been added to clarify an aspect of the present invention in which dragging or dropping a new node on or near a connector triggers insertion of the new node at the connector. Claim 19 has been added to recite an aspect of dragging a new node to a location in proximity to a connector, which becomes the point of insertion.

CONCLUSION

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please AMEND and ADD to the claims in accordance with the following:

1. (TWICE AMENDED) A graphic editing apparatus, comprising:

a display unit displaying a graphic including a first object and a second object which are connected with each other using a first connector, where the first object, second object, and first connector are all displayed on a display screen; and

an interactive graphical editing unit [, when] responding to a third object [is] having been interactively placed in a predetermined position in relation to the first connector after the first object, second object, and first connector have been displayed, by automatically creating and displaying a second connector for connecting the displayed first object and the third object and a third connector for connecting the displayed third object and the second object.

2. (ONCE AMENDED) The graphic editing apparatus according to claim 1, wherein when the first connector and the third object overlap each other, said interactive graphical editing unit automatically creates and displays the second and third connectors.

3. (ONCE AMENDED) The graphic editing apparatus according to claim 1, further comprising:

a judgment unit judging automatically whether a distance between the first object and the second object is sufficient to accommodate the third object between them; and

a shift unit, if the distance is not sufficient, automatically shifting at least one of the first and second objects.

4. (AS UNAMENDED) The graphic editing apparatus according to claim 1, further comprising a management unit managing a subordinate relationship between objects, and

the management unit, if the second object is subordinated to the first object before the third object is inserted between the first object and the second object, subordinating the third object to the first object and subordinating the second object to the third object.

5. (TWICE AMENDED) A graphic editing apparatus, comprising:

a display unit displaying a graphic including a first object and a second object which are connected with each other using a first connector, where the first object, second object, and first connector are all displayed on a display screen; and

an interactive graphical editing unit, when an area on the display screen is designated by a user of said graphic editing apparatus and the designated area overlaps the first connector, the first connector is interactively selected after the first object, second object, and first connector have been displayed, automatically creating and displaying a second connector for connecting the displayed first object and the third object and a third connector for connecting the displayed third object and the second object.

6. (ONCE AMENDED) The graphic editing apparatus according to claim 5, wherein said interactive editing unit automatically shifts the displayed second object, displays the third object in a position where the second object was displayed before the first connector is interactively selected, and stops displaying the first connector.

7. (ONCE AMENDED) The graphic editing apparatus according to claim 5, further comprising a coordinate system providing unit providing a virtual coordinate system defining boxes, in which each box is defined as area for displaying one object, wherein

said display unit displays each object using the virtual coordinate system, and said interactive editing unit locates each object using the virtual coordinate system.

8. (TWICE AMENDED) A graphic editing apparatus, comprising:

a display unit displaying a first object, a plurality of second objects and a plurality of first connectors for connecting the first object and the plurality of second objects, where the first object, the plurality of second objects, and the plurality of first connectors are all displayed on a display screen; and

an interactive graphical editing unit [, when] responding to one or more of the plurality of first connectors [are] having been interactively selected after the first object, the plurality of second objects, and the plurality of first connectors have been displayed, by automatically creating and displaying a second connector for connecting the displayed first object and the third object, and one or more third connectors for connecting one or more of the displayed second objects connected to the interactively selected first connector and the third object.

9. (TWICE AMENDED) A graphic editing method, comprising:

displaying a graphic including a first object and a second object which are connected with each other using a first connector, where the first object, second object, and first connector are all displayed on a display screen; and

[when] in response to a third object [is] having been interactively placed in a predetermined position in relation to the first connector after the first object, second object, and first connector have been displayed, automatically creating and displaying a second connector for connecting the displayed first object and the third object and a third connector for connecting the third object and the second object.

10. (TWICE AMENDED) A graphic editing method:

displaying a graphic including a first object and a second object which are connected with each other using a first connector, where the first object, the second object, and the first connector are all displayed on a display screen; and

after the first object, second object, and first connector have been displayed and when an area on the display screen is designated by a user of said graphic editing apparatus and the designated area overlaps the first connector the first connector is interactively selected, automatically creating and displaying a second connector for connecting the first object and the third object and a third connector for connecting the third object and the second object.

11. (TWICE AMENDED) A storage medium on which a program enabling a computer to execute a process is stored, the process comprising:

displaying a graphic including a first object and a second object which are connected with each other using a first connector, where the first object, the second object, and the first connector are all displayed on a display screen; and

after the first object, second object, and first connector have been displayed and [when] in response to a third object [is] having been interactively placed in a predetermined position in relation to the first connector, creating and displaying a second connector for connecting the displayed first object and the third object and a third connector for connecting the third object and the second object.

12. (TWICE AMENDED) A storage medium on which a program enabling a computer to execute a process is stored, the process comprising:

displaying a graphic including a first object and a second object which are connected with each other using a first connector, where the first object, the second object, and the first connector are all displayed on a display screen; and

after the first object, second object, and first connector have been displayed and when an area on the display screen is designated by a user of said graphic editing apparatus and the designated area overlaps the first connector the first connector is interactively selected, automatically creating and displaying a second connector for connecting the displayed first object and the third object and a third connector for connecting the displayed third object and the second object.

13. (ONCE AMENDED) A method of interactively graphically inserting a node into a displayed graph comprising displayed nodes and connectors graphically connecting the nodes, said method comprising:

interactively determining a displayed first connection in the displayed graph by comparing a position of the first connection with a position of an object being moved by the input device, where the displayed first connection connects a first displayed node and a second displayed node of the displayed graph; and

responsive to said interactive determining, automatically displaying and inserting the insertion node into the graph by automatically creating and displaying a second connection connecting the insertion node to the displayed first node, and by automatically creating and displaying a third connection connecting the insertion node to the displayed second node.

14. (ONCE AMENDED) A graphic editing apparatus, comprising:

a display unit displaying a first object, a second object, and a first connector, the objects being graphically connected with each other by the first connector; and

an editing unit, responsive to a displayed third object being interactively located [in] into a predetermined position in relation to the first connector, and in response to the interactive locating, creating for display a second connector graphically connecting the displayed first object and the displayed third object, and creating a third connector graphically connecting the third object and the second object, where the second and third connectors reflect the third object being newly related to the first and second objects.

15. (ONCE AMENDED) A method, comprising:

interacting with a graphical user interface to insert a [new] node between existing edge-connected nodes of a displayed graph by one of (1) dragging the node over or near a line connecting the existing nodes and (2) dropping the node onto or near the line; and

responsive to interactively inserting the [new] node, automatically displaying new lines in the graph and automatically undisplaying [a] the line [from the graph] connecting the existing nodes, where the displaying and undisplaying reflects changes to edges of the graph caused by the interactive inserting.

16. (ONCE AMENDED) A method, comprising:

storing a graph data structure comprising first node data, second node data, and first relationship data logically relating the first node data to the second node data;

displaying first and second graphical nodes portraying the first node data and the second node data, and displaying a first graphical line portraying the first relationship data by graphically connecting the first and second graphical nodes;

[after said displaying, adding new node data to the graph data structure;]

after said displaying, interactively selecting the first displayed line by one of (1) dragging a new node graphic over or near the first displayed line and (2) dropping the new node graphic onto or near the first displayed line, where the new node graphic has corresponding new node data; and

in response to said interactive selecting: undisplaying the selected first line, [displaying a new node corresponding to the new node data,] adding to the graph data structure new relationship data that relates the new node data to the first node data and the second node data, displaying a new first line and a new second line portraying the new relationship data and graphically connecting the new graphical node to the first and second graphical nodes.

17. (ONCE AMENDED) A method, comprising:

storing a graph data structure comprising a set of node variables and information logically interrelating the node variables;

displaying, with a graphical user interface (GUI), graphical nodes and graphical lines graphically connecting the graphical nodes, where the graphical nodes correspond to the node variables, and where the graphical lines correspond to the information logically relating the node variables;

after said displaying and storing, [adding] creating a new node variable [to the set of

node variables], where the new node variable is unrelated to any other variables in the set of node variables, and where a third graphical node corresponds to the new node variable;

interacting with the GUI to select a first graphical line from among the displayed graphical lines by one of dragging the third graphical node over or near the first graphical line and dropping the third graphical node onto or near the first graphical line, where the selected first graphical line graphically connects a first and second of the displayed graphical nodes, where a first node variable from the set of node variables corresponds to the displayed first graphical node, where a second node variable from the set of variables corresponds to the displayed second graphical node, and where the displayed first graphical line represents some of the relating information that logically relates the first and second node variable; and

responsive to selecting the first graphical line, altering the logical relating information to logically unrelated the first and second node variables, causing the selected first line to be undisplayed, newly displaying [a] the third graphical node corresponding to the new node variable, logically relating the new variable to first and second variables of the set of variables, newly displaying a first graphical line connecting the newly displayed third graphical node with the first graphical node, and newly displaying a second graphical line connecting the newly displayed third graphical node with the second graphical node.

18. (NEW) A method according to claim 11, wherein the interactive placement comprises interactively selecting the first connector by one of (1) dragging the new node over or near the first connector and (2) dropping the new node onto or near the first connector.

19. (NEW) A method of inserting interactively and graphically connecting a node to a displayed graph, comprising:

displaying the graph;

dragging a graphic node to change a location of the graphic node; and

in response to automatically determining that the location of the graphic node is in proximity to a connector connected to an existing node in the graph, automatically displaying a new graph connector connecting the graphic node to the existing node.